MULTI-JET-FUSION (MJF)

What is multi-jet-fusion?

Multi-jet-fusion is an industrial 3d printing process that produces functional nylon prototypes and end-use production parts fast and accurately. Final parts exhibit quality surface finishes, fine feature resolution, and more consistent mechanical properties when compared to processes like selective laser sintering.

How Does Multi Jet Fusion Works?

Multi-jet-fusion uses an inkjet array to selectively apply fusing and detailing agents across a bed of nylon powder, which are then fused by heating elements into a solid layer. After each layer, the powder is distributed on top of the bed and the process repeats until the parts are complete.

When the build finishes, the entire powder bed with the encapsulated parts is moved to a processing station where a majority of the loose powder is removed by an integrated vacuum. Parts are then bead blasted to remove any of the remaining residual powder before ultimately reaching the finishing department where they are dyed black to improve cosmetic appearance.

MJF produces functional plastic parts with isotropic mechanical properties that can be used for detailed prototyping or end-use low-volume production.

Design Requirements

Minimum wall thickness	**0.8 mm**
Minimum hole diameter	**1.0 mm**
Minimum feature size	**2.0 mm**
Minimum printable font size	**6pt**
Minimum space and clearance	**1.0 mm**
Minimum slit between walls	**1.0 mm**

Available materials for MJF 3d printing

Here is a list of the MJF materials available on 3Dtechnologies4U.

Materials	Applications
PA11	Cases, medical and food contact products, eyewear frames, drones, home decorations, prosthetics
PA12	Mechanical and structural parts, mounts, cases, eyewear frames, technology accessories, art decorations, prosthetics
PA + Glass filled	Tooling, robotics, drones, fixtures, medical braces, housings and cases

Example of MJF component